

# EUROPEAN PATENT OFFICE

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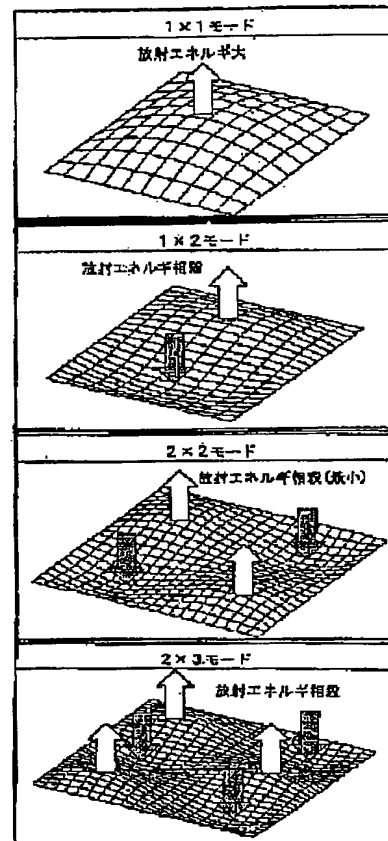
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INVENTOR : KAMURA TAKANOBU;

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TITLE : EMITTED SOUND REDUCING  
METHOD FOR PANEL AND PANEL



ABSTRACT : PROBLEM TO BE SOLVED: To reduce emitted sound of a vehicle body panel so as to reduce road noise of a vehicle at running at setting a vibration mode exciting a panel to be a mode of low emission efficiency in the frequency to reduce emitted sound.

SOLUTION: When a vibration mode exciting a panel is set to be a  $(n \times m)$  mode  $\{(n)$  is the number of loop of vibration in a specified direction,  $(m)$  is the number of loop of vibration in the perpendicular direction to the fixed direction}, a vibration mode of low radiation efficiency is a vibration mode of  $(n \times m) =$  an even number such as a  $2 \times 2$  mode. In a  $1 \times 1$  mode, the emission efficiency is high and the emitted sound is large, but in a  $1 \times 2$  mode, a  $2 \times 2$  mode, or a  $2 \times 3$  mode, emitted sound is cancelled each other and the emission efficiency is lowered. Namely, when a vibration mode is set to be  $(n \times m)$ , a panel construction excited by a frequency to reduce emitting sound in a vibration mode of  $(n \times m) =$  an even number is constituted, the harmful emitted sound is reduced.

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